Polycare

The need for change - Circularity in the building industry

Cement Concrete

"The most destructive material on earth."

The Guardian

Design for destruction

Sand as filler material (sand crisis)

Cement as binder

Complex building processes

Generating loads of waste

Polyblocks

The first of its kind in the world.

Design for disassembly and reuse

"Waste" as filler materials to close the loop

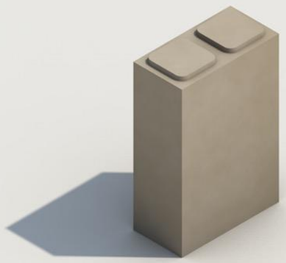
New binder technologies for lower emission

No wet works and heavy machines needed

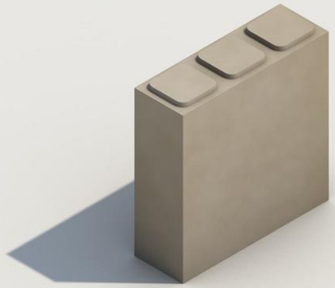
Zero waste along the value chain

Polyblocks – The circular way of building

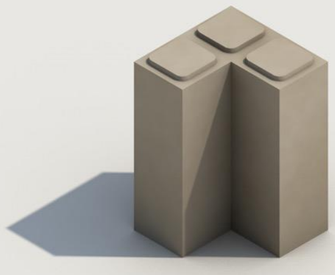
Accelerating the transition into a sustainable and modular building industry



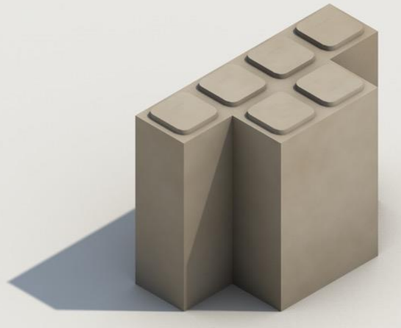
Simplifying the building process radically to streamline the building process



Paving the path towards circular economy through reusability and recycling



Leading innovation in construction with patented technology



Our strong partners in science, finance and approvals

Bauhaus-Universität Weimar

Fraunhofer

IMPACT FACTORY

MADASTER

KFW DEG

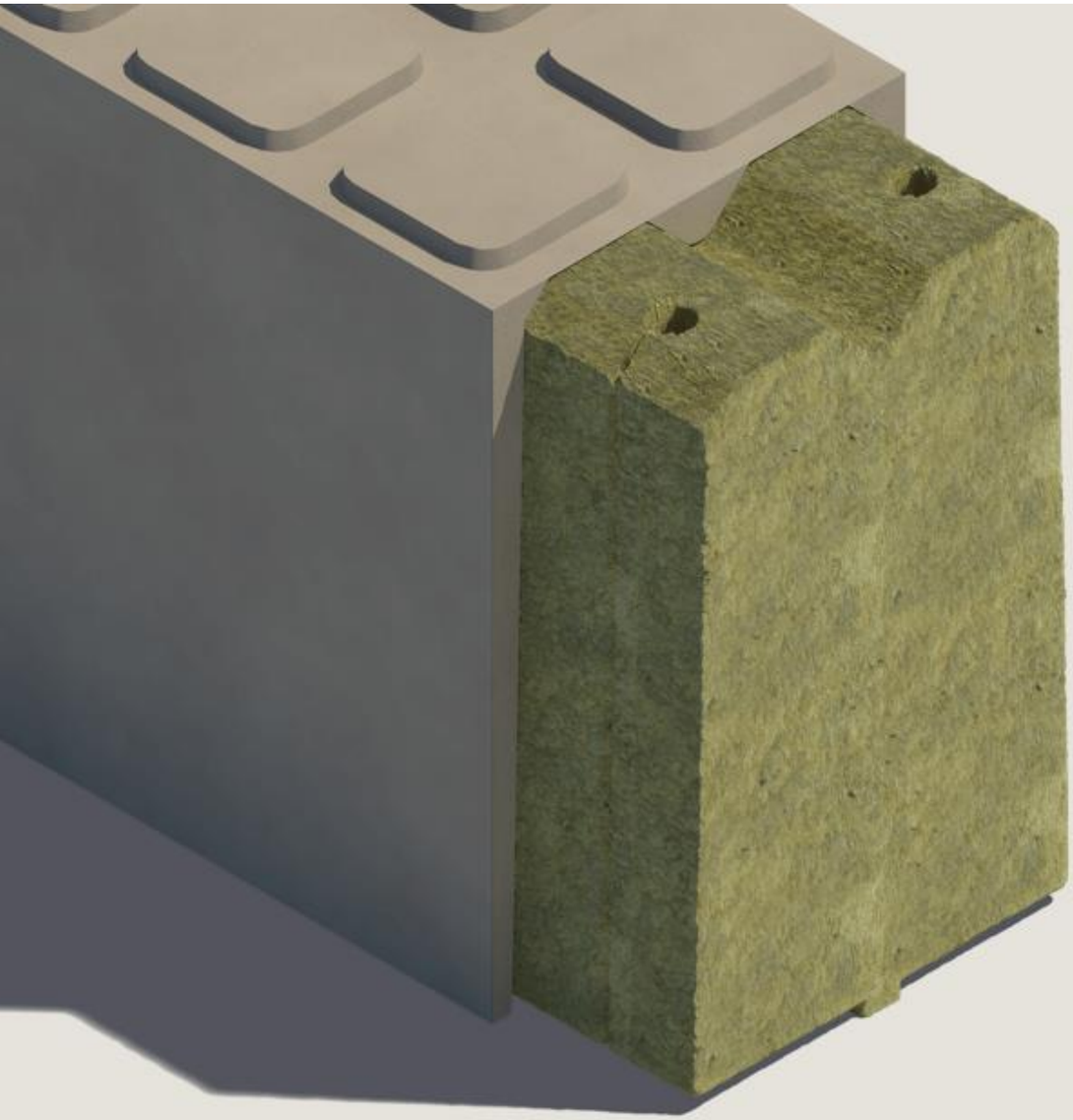
Deutsches Institut für Bautechnik

AGRÉMENT SOUTH AFRICA
innovative construction product assessments

The Polyblocks
Our revolutionary block

An easy-to-use system of super strong and lightweight building blocks mostly made from secondary raw materials or building rubble, enabling the transition towards a circular economy and more sustainable built environment.
Polyblocks are designed specifically for Empowerment, Sustainability, Circularity and Liveability.

- 60 % less CO_2 emissions
- Completely digitalized process
- Easy to transport due to lightweight
- No mortar or glue needed
- Design for Disassembly and Reusability
- Minimises waste on site
- Very short construction time
- No heavy machines needed



Less Material, More Insulation

More than 80% of block volume consists of insulation. The insulation core provides protection against the cold and heat. The shell of the block accounts for 20% by volume) and is made of polymer concrete, which takes over the statics. With $1 m^3$ polymer concrete, $20 m^2$ of wall surface can be built.

Polymer Concrete

88% Filler Material

Any flowing local material, such as desert sand or industrial waste streams (foundry sand, slag, tailings, building rubble)

+

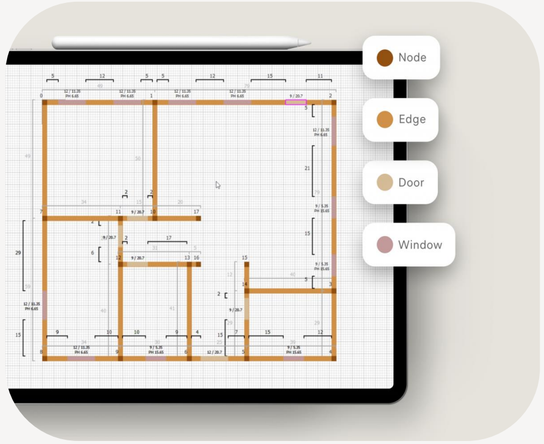
12% Binder Material

Earthkind unsaturated polyester resin – consists of ~38% of recycled PET (www.beearthkind.co.za)

=

- 0% Water Consumption
- Excellent resistance against environmental influences
- Durable and robust
- 80 – 120 MPa Compressive strengths
- Fast curing
- Low energy consumption during production

Technology as a Construction Enabler: The Polybuilder

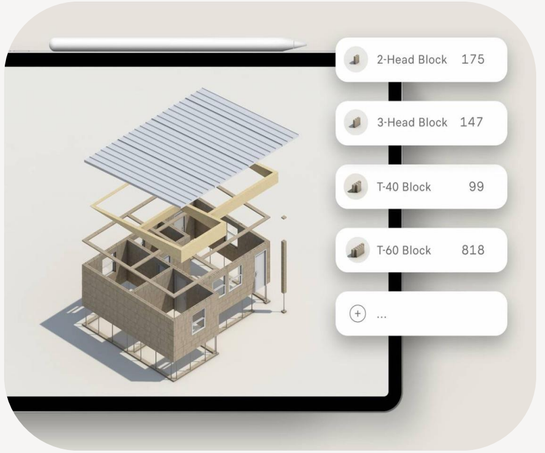


Design

Convert your specific project into Polycare through an optimization algorithm. Costing models available.

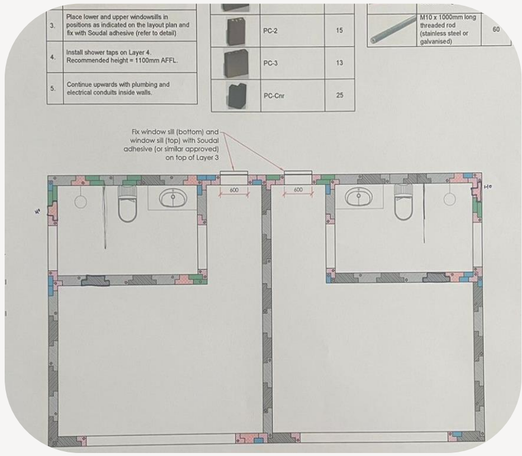
Planning

Align to architectural software, 3D Models and building plans.



Production and Logistics

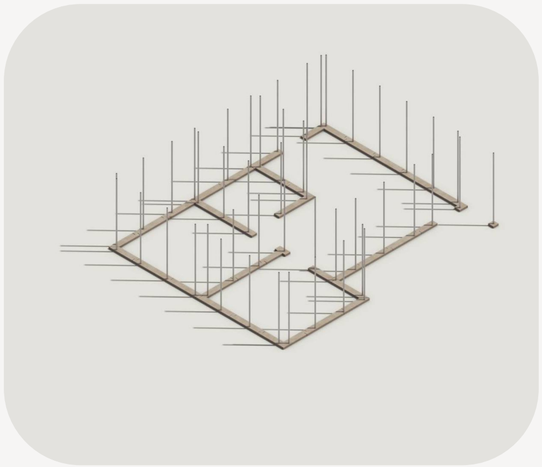
Production lists, quantity assessment, packaging and delivery.



Fast and waste-free implementation

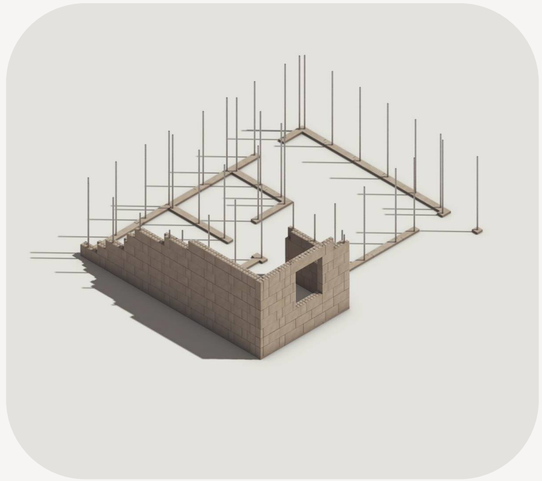
Building plans for easy on-site assembly (and disassembly).

Simple and fast Assembly: The Building System



Ground bar

Ground bars as a basis, are laid and connected to each other. Threaded rods are screwed in.



Polyblocks

Row by row, the Polyblocks are stacked according to the assembly plan.

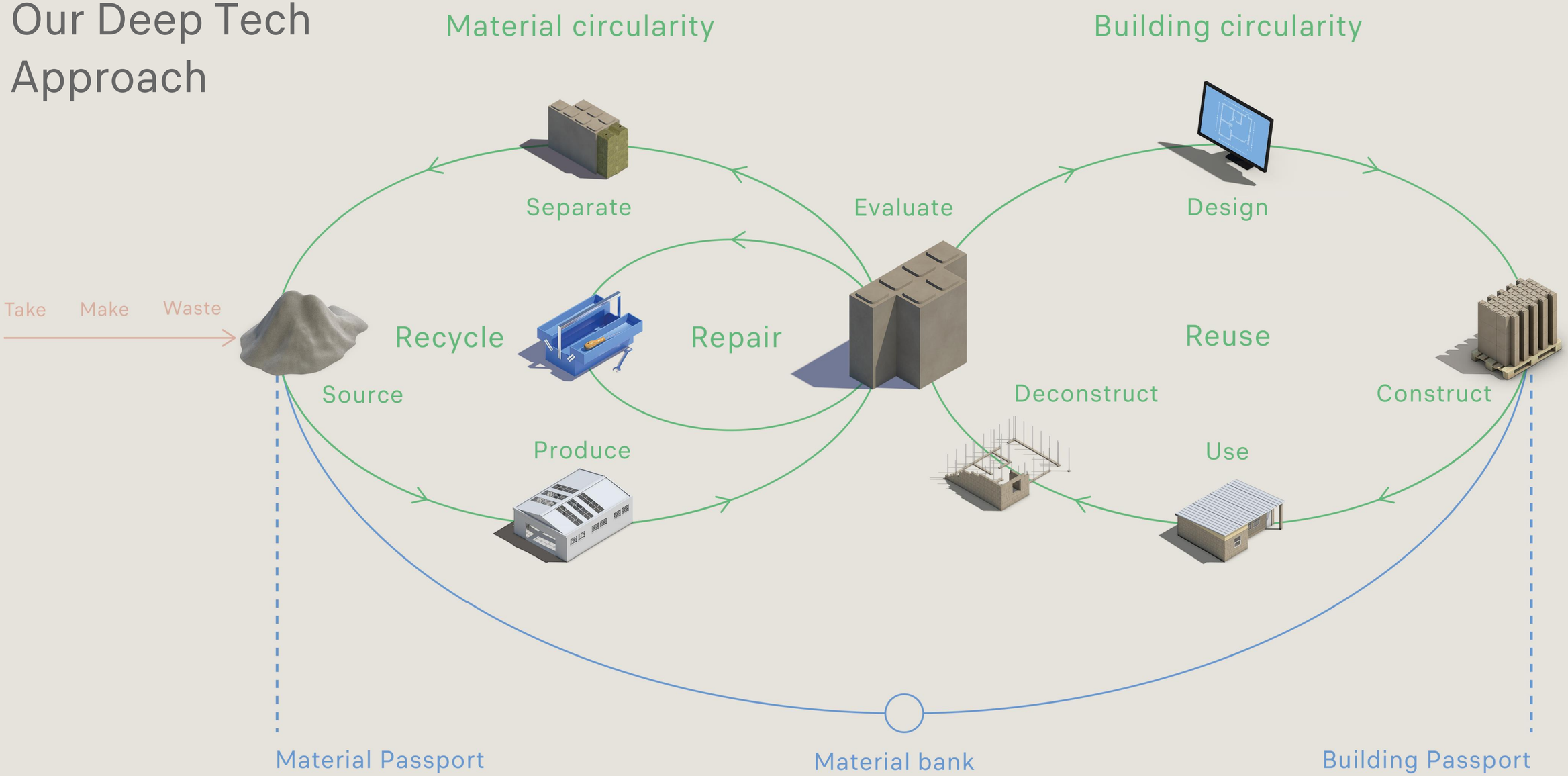
Fixation

With the threaded rods and nuts, the Polyblocks are fixed between the ground bar and the ring anchor.

Completion

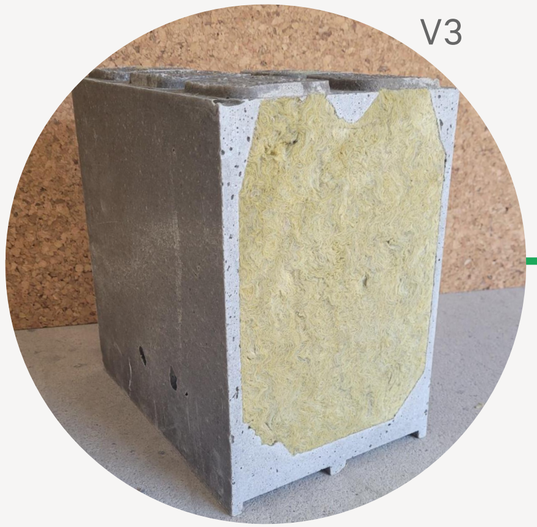
An individual gable structure and the roof construction complete the building.

Our Deep Tech Approach



Our Material Roadmap – Sustainable Concrete

V3



Today

- Shell made from waste streams / unclassified materials (60-90%)
- 75% less material
- 60% less CO2e

GEO

In 2-3 years

- New generations of binders allow 99% circular solution
- 70-90% less CO2e

Ultimate

In 3-5 years

- Integrating carbon sinks such as biochar for a CO2e neutral / negative product

Our Material Roadmap – Insulation Cores (inside)

Solid core

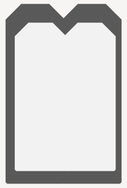
Cement-bound EPS

PU foam

Inorg. bound natural fiber

„Bio-derived“ foam

Mycelium

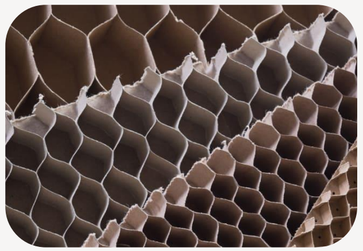


Hollow core

Paper pulp

Inorg. bound fiber

Organic bound fiber



"strengthened" cardboard

Tech. progress